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Indian Standard
SPECIFICATION FOR
GUAR MEAL AS LIVESTOCK
FEED INGREDIENT
(*First Revision*)

UDC 636.085 GUAR

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Indian Standard

SPECIFICATION FOR GUAR MEAL AS LIVESTOCK FEED INGREDIENT

(First Revision)

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Indian Standard
SPECIFICATION FOR
GUAR MEAL AS LIVESTOCK
FEED INGREDIENT
(*First Revision*)

0. FOREWORD

0.1 This Indian Standard (First Revision) was adopted by the Indian Standards Institution on 28 November 1986, after the draft finalized by the Animal Feeds Sectional Committee had been approved by the Agricultural and Food Products Division Council.

0.2 Guar meal is a by-product obtained during the manufacture of guar gum. In the process, the hulls of the guar seeds (*Cyamopsis tetragonoloba*) are separated. After the separation of the hulls, the seeds are subjected to grinding, milling and shifting to separate the germ and the endosperm. Both the hulls and the germ together constitute 'guar meal'.

0.3 Guar meal is used as a common livestock feed in various parts of the country. However, it has been observed that it has a toxic effect when fed to poultry in large quantities. It is, therefore, suggested that guar meal in the poultry feed should not exceed 5 percent by mass.

0.4 The composition of guar meal compares favourably with some of the common protein-rich feeds for livestock. In order to ensure the availability of guar meal of a proper quality for feeding livestock, formulation of this standard was considered necessary.

0.5 This standard was first published in 1967. In this revision, requirements for crude protein, crude fibre and acid insoluble ash have been revised.

0.6 The committee responsible for this standard is seized of the aflatoxin problem. The safe limit and reliable method for its estimation will be included in the standard no sooner these are finalized.

0.7 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be same as that of specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements and the methods of sampling and test for guar meal for use as a livestock feed ingredient.

2. REQUIREMENTS

2.1 Description — Guar meal shall be the residual product obtained after the removal of gum from guar seeds and shall largely consist of hulls and germs of the seeds. The material shall be free from adulterants, musty, stale or other objectionable odour or sourness. The material shall be free from visible fungus, insect infestation and lumps. It shall also be free from dirt and other extraneous matter including iron or other metallic pieces.

2.2 The material shall also conform to the requirements prescribed in Table 1.

TABLE 1 REQUIREMENTS FOR GUAR MEAL AS LIVESTOCK FEED INGREDIENT

| SL No. | CHARACTERISTIC | REQUIREMENT | METHOD OF TEST, REF TO CL No. OF IS : 7874 (PART 1) - 1975* |
|--------|---|-------------|---|
| (1) | (2) | (3) | (4) |
| i) | Moisture, percent by mass, <i>Max</i> | 10.0 | 4 |
| ii) | Crude protein (Nitrogen \times 6.25), percent by mass, <i>Min</i> | 45.0 | 5 |
| iii) | Crude fat or ether extract, percent by mass, <i>Min</i> | 3.0 | 7 |
| iv) | Crude fibre, percent by mass, <i>Max</i> | 8.0 | 8 |
| v) | Total ash, percent by mass, <i>Max</i> | 7.0 | 9 |
| vi) | Acid insoluble ash, percent by mass, <i>Max</i> | 1.5 | 10 |

NOTE — Requirements for items (ii) to (vi) are on moisture-free basis.

*Methods of test for animal feeds and feeding stuffs: Part 1 General methods.

*Rules for rounding off numerical values (revised).

3. PACKING

3.1 Unless otherwise agreed to between the purchaser and the vendor, the material shall be packed in sound jute bags. The mouth of each bag shall be either machine stitched or rolled over and hand stitched with strong jute twine.

4. MARKING

4.1 Each bag shall be marked legibly and indelibly with the following information:

- a) Name of the material;
- b) Name of the manufacturer;
- c) Net mass, in kg, when packed;
- d) Batch or code number; and
- e) Date of manufacture.

4.2 Each bag may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

5. SAMPLING AND CRITERIA FOR CONFORMITY

5.1 Samples — Representative samples of the material for tests shall be drawn according to the method prescribed in Appendix C of IS : 2052-1979*.

5.2 Number of Tests — Tests for crude protein and acid insoluble ash shall be conducted individually on each of the sample constituting a set of test samples while the tests for remaining characteristics specified in Table 1, shall be conducted on the composite sample.

5.3 Criteria for Conformity — A lot shall be considered as conforming to the specification, when:

- a) each of the test results for crude protein and acid insoluble ash satisfies the requirements as specified in Table 1, and
- b) the test results on the composite sample satisfy the requirements for the remaining characteristics specified in Table 1.

*Specification for compounded feeds for cattle (*third revision*).

5.3.1 If one or more test results do not satisfy the requirements for crude protein and acid insoluble ash the procedure in **5.3.1.1** shall be adopted for determining the conformity of the material for these two characteristics.

5.3.1.1 Calculate the mean and range as follows:

$$\text{Mean } \bar{X} = \frac{\text{sum of the test results}}{\text{number of test samples}}$$

$$\text{Range } \bar{R} = \text{difference between the maximum and the minimum values of the test results}$$

The requirements for crude protein and acid insoluble ash shall be considered as fulfilled if :

$\bar{X} - 0.4 \bar{R}$ is equal to or greater than the requirements for crude protein, and

$\bar{X} + 0.4 \bar{R}$ is less than or equal to the requirement for acid insoluble ash.

6. TESTS

6.1 Tests shall be carried out as prescribed in col 4 of Table 1.

6.2 Pure chemicals and distilled water (*see* IS : 1070-1977*) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the test results.

*Specification for water for general laboratory use (*second revision*).

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INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

| QUANTITY | UNIT | SYMBOL |
|---------------------------|----------|--------|
| Length | metre | m |
| Mass | kilogram | kg |
| Time | second | s |
| Electric current | ampere | A |
| Thermodynamic temperature | kelvin | K |
| Luminous intensity | candela | cd |
| Amount of substance | mole | mol |

Supplementary Units

| QUANTITY | UNIT | SYMBOL |
|-------------|-----------|--------|
| Plane angle | radian | rad |
| Solid angle | steradian | sr |

Derived Units

| QUANTITY | UNIT | SYMBOL | DEFINITION |
|----------------------|---------|--------|--|
| Force | newton | N | $1 \text{ N} = 1 \text{ kg.m/s}^2$ |
| Energy | joule | J | $1 \text{ J} = 1 \text{ N.m}$ |
| Power | watt | W | $1 \text{ W} = 1 \text{ J/s}$ |
| Flux | weber | Wb | $1 \text{ Wb} = 1 \text{ V.s}$ |
| Flux density | tesla | T | $1 \text{ T} = 1 \text{ Wb/m}^2$ |
| Frequency | hertz | Hz | $1 \text{ Hz} = 1 \text{ c/s (s}^{-1}\text{)}$ |
| Electric conductance | siemens | S | $1 \text{ S} = 1 \text{ A/V}$ |
| Electromotive force | volt | V | $1 \text{ V} = 1 \text{ W/A}$ |
| Pressure, stress | pascal | Pa | $1 \text{ Pa} = 1 \text{ N/m}^2$ |

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